

AMENDMENT

Please amend the above-captioned application as follows:

In the claims

Please amend the claims as follows:

8. (Amended) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bound to a compound having the formula: $R_1 - X - R_2$, wherein R_1 is a cyclic ether group, R_2 is an alkoxysilane group; and X is a moiety linking the cyclic ether group and the alkoxysilane group.

9. (Amended) The composition of claim 8, wherein the biological molecule comprises a nucleic acid.

10. (Amended) The composition of claim 8, wherein the biological molecule comprises a polysaccharide or a saccharide.

11. (Amended) The composition of claim 8, wherein the biological molecule comprises a lipid.

12. (Amended) The composition of claim 8, wherein the biological molecule comprises a small molecule.

13. (Amended) The composition of claim 8, wherein the cyclic ether group comprises an epoxide group.

14. (Amended) The composition of claim 13, wherein the epoxide group comprises an ethylene oxide.

15. (Amended) The composition of claim 8, wherein the alkoxysilane is selected from the group consisting of $-\text{Si}(\text{OCH}_3)_3$, $-\text{Si}(\text{OC}_2\text{H}_5)_3$, $-\text{Si}(\text{OCH}_3)_2\text{H}$, $-\text{Si}(\text{OCH}_3)(\text{CH}_3)_2$, and $-\text{Si}(\text{OCH}_3)_2\text{CH}_3$.

16. (Amended) The composition of claim 8, wherein the compound is 3-glycidoxypentyltrimethoxysilane.

17. (Amended) A modified biological molecule covalently bound to a compound having the formula: $R_1 - X - R_2$, wherein R_1 comprises an amino group, R_2 comprises an alkoxysilane group; and X comprises a moiety linking the amino group and the alkoxysilane group.

25. (Amended) A microarray comprising:
a solid support, and
modified biological molecules covalently bound to a compound having the formula: $R_1 - X - R_2$, wherein R_1 comprises an amino group, R_2 comprises an alkoxysilane group; and X comprises a moiety linking the amino group and the alkoxysilane group, immobilized onto the solid support.

26. (Amended) The microarray of claim 25 or claim 82, wherein the solid support comprises hydroxyl groups.

27. (Amended) The microarray of claim 25 or claim 82, wherein the solid support comprises a glass.

28. (Amended) The microarray of claim 25 or claim 82, wherein the solid support comprises a surface selected from the group consisting of a quartz, a mica, an alumina, a titania, an SnO_2 , an RuO_2 and a PtO_2 .

29. (Amended) The microarray of claim 25 or claim 82, wherein the solid support comprises a metal oxide surface.

30. (Amended) The microarray of claim 25 or claim 82, wherein the solid support comprises a compound selected from the group consisting of a polystyrene, a polyester, a polycarbonate, a polyethylene, a polypropylene, and a nylon.

31. (Amended) The microarray of claim 25 or claim 82, wherein biological molecules are immobilized onto the solid support in orderly, discrete spots.

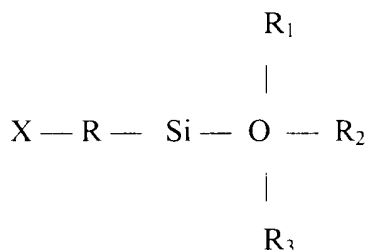
32. (Amended) The microarray of claim 31 or claim 82, wherein the discrete spots are about 50 microns in diameter.

33. (Amended) A modified biological molecule, wherein the biological molecule is prepared by a process comprising the steps of:

- (a) providing a biological molecule comprising a guanine base or a cytosine base;
- (b) reacting the guanine base or the cytosine base with an N-bromosuccinimide at pH about 8.0 to form a brominated biological molecule; and
- (c) reacting the brominated biological molecule with a silane having the formula $\text{—HN—(CH}_2\text{)}_n\text{—Si(OR)}_3$, wherein $n = 3, 4, 5, 6, 7, 8$, or 9 .

35. (Amended) A modified biological molecule, wherein the biological molecule is prepared by a process comprising the steps of:

- (a) providing a biological molecule;
- (b) providing a compound having a formula

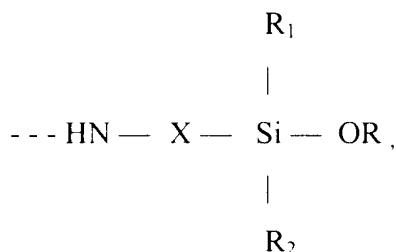


wherein X is a halide and R is a moiety linking the biological molecule with the Si moiety;

(c) reacting the biological molecule with the compound of step (b) at near neutral pH.

39. (Amended) A modified biological molecule covalently bound to a compound having the formula: $\text{—HN—(CH}_2\text{)}_n\text{—Si(OR)}_3$, wherein $n = 3, 4, 5, 6, 7, 8$, or 9 .

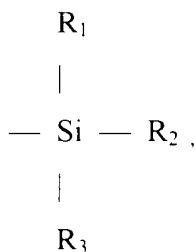
41. (Amended) A modified biological molecule covalently bonded to a compound having the formula:



wherein R is selected from the group consisting of —CH_3 , $\text{—C}_2\text{H}_5$, and $\text{—C}_3\text{H}_7$, and R_1 and R_2 are the same or different and are selected from the group consisting of —H , —CH_3 , $\text{—C}_2\text{H}_5$, —OCH_3 , $\text{—OC}_2\text{H}_5$, $\text{—C}_3\text{H}_7$, and $\text{—OC}_3\text{H}_7$; and X is a linking group comprising an at least partially aliphatic chain.

63. (Amended) A modified biological molecule comprising a biological molecule covalently bound to a compound having the formula: $\text{R}_1\text{—X—R}_2$; wherein R_1 comprises a cyclic ether; wherein R_2 comprises a —NR_3 , R_3 comprises a —H or an alkyl group and X comprises a moiety linking the cyclic ether group and the alkoxysilane group.

64. (Amended) A modified biological molecule comprising a biological molecule covalently bonded to a compound having the formula



wherein R_1 , R_2 and R_3 are the same or different, and are selected from the group consisting of $-\text{OCH}_3$, $-\text{OC}_2\text{H}_3$, $-\text{OC}_2\text{H}_7$, and $-\text{Cl}$, and X is a moiety linking the biological molecule to the compound.

Please add the following new claims:

--78. (NEW) The composition of claim 8, wherein the nucleic acid comprises an RNA or a DNA.

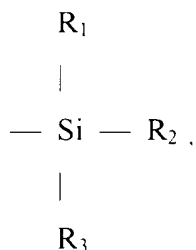
79. (NEW) The modified biological molecule of claim 17, wherein the biological molecule comprises a nucleic acid.

80. (NEW) The modified biological molecule of claim 79, wherein the nucleic acid comprises an RNA or a DNA.

81. The modified biological molecule of claim 18, wherein the polypeptide is an antibody.

82. (NEW) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bound to a compound having the formula: $R_1 - X - R_2$; wherein R_1 comprises a cyclic ether; wherein R_2 comprises a $-\text{NR}_3$, R_3 comprises a $-\text{H}$ or an alkyl group and X comprises a moiety linking the cyclic ether group and the alkoxysilane group.

83. (NEW) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bonded to a compound having the formula



wherein R_1 , R_2 and R_3 are the same or different, and are selected from the group consisting of $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$, $-\text{OC}_3\text{H}_7$, and $-\text{Cl}$, and X is a moiety linking the biological molecule to the compound.

84. (NEW) A microarray comprising:

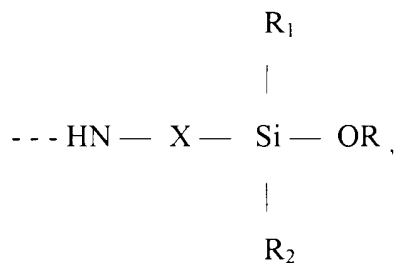
a solid support, and

modified biological molecules comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bound to a compound having the formula: $R_1 - X - R_2$, wherein R_1 is a cyclic ether group, R_2 is an alkoxyisilane group; and X is a moiety linking the cyclic ether group and the alkoxyisilane group, immobilized onto the solid support.

85. (NEW) A microarray comprising:

a solid support, and

a plurality of biological molecules covalently bonded to a compound having the formula:



wherein R is selected from the group consisting of $-\text{CH}_3$, $-\text{C}_2\text{H}_5$, and $-\text{C}_3\text{H}_7$, and R_1 and R_2 are the same or different and are selected from the group consisting of $-\text{H}$, $-\text{CH}_3$, $-\text{C}_2\text{H}_5$, $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$, $-\text{C}_3\text{H}_7$, and $-\text{OC}_3\text{H}_7$; and X is a linking group comprising an at least partially aliphatic chain, immobilized onto the solid support.

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86. (NEW) A microarray comprising:
a solid support, and
a plurality of modified biological molecules covalently bound to a compound
having the formula: $\text{—HN—(CH}_2\text{)}_n\text{—Si(OR)}_3$, wherein $n = 3, 4, 5, 6, 7, 8$, or 9 . --